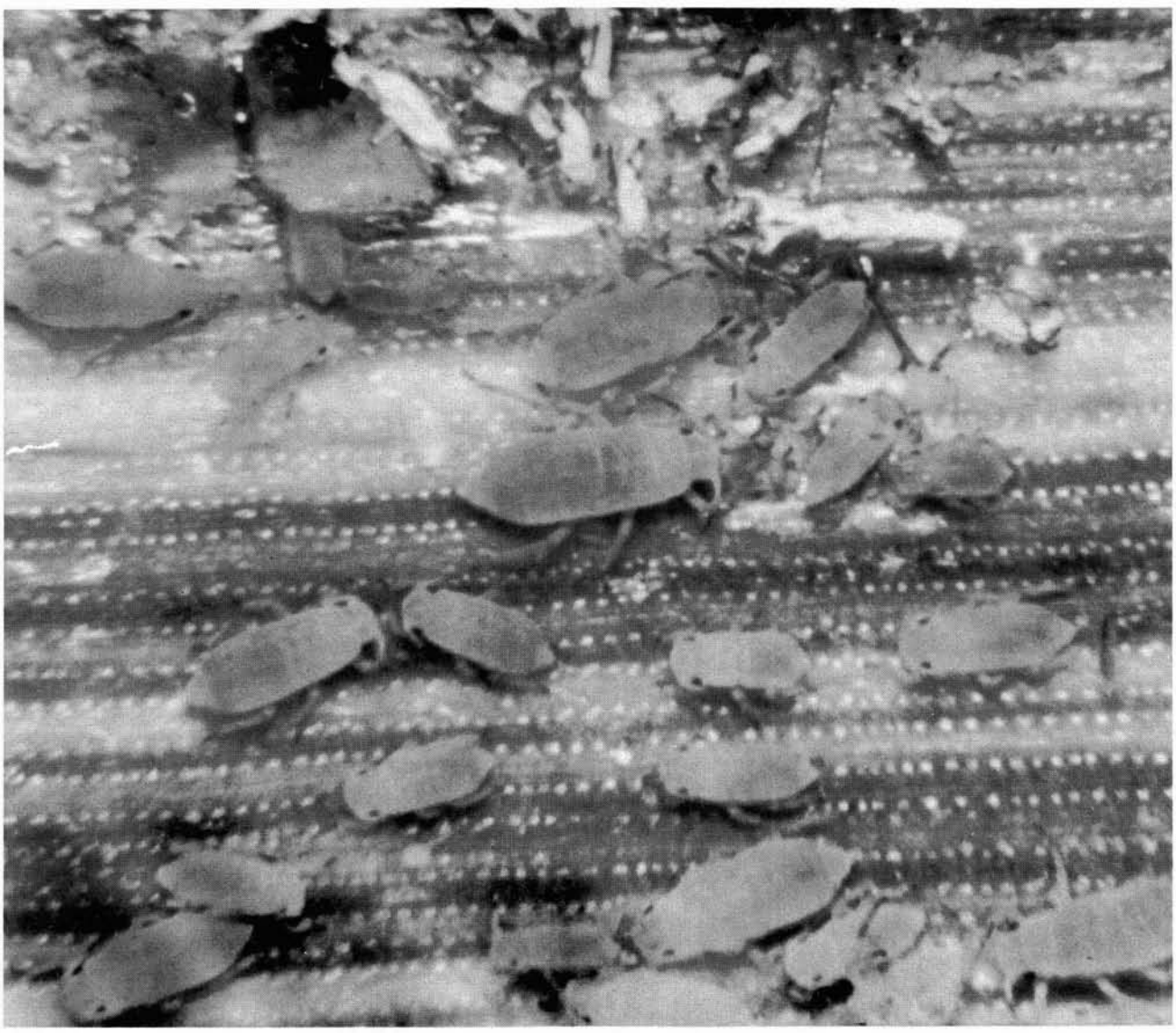
CALIFORNIA PLANT PEST and DISEASE REPORT

Vol. 8 Numbers 1-2
January-May, 1989

What's Inside:

California Department of Food and Agriculture 1220 N Street, Sacramento, California 94271-0001



Russian Wheat Aphid, *Diuraphis noxia*, apterous adults and nymphs from wheat, Davis, Yolo County. Original photograph by R.J. Gill; enlargement by Jim Heath.

Correspondence should be addressed to the editorial staff of the California Plant Pest and Disease Report (see address below).

California Plant Pest and Disease Report
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The editor acknowledges the contributions of numerous individuals within the department, without whose cooperation and assistance this project would not be possible.

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The California Plant Pest and Disease Report Volume 8, Numbers 1-2, was issued on July 28, 1989.

Entomological Highlights

IMPORTANT CORRECTION

In the last issue of CPPDR [7(5-6):75], it was noted that the common name of "eucalyptus longhorn beetle" was approved for *Phoracantha semipunctata* by the Common Names Committee of the Entomological Society of America (ESA). However, it has been brought to the editor's attention by Dr. Carl Koehler that some opposition was presented against this common name and that the name has now been changed to "eucalyptus longhorned borer" in order to make the name more consistent with other common names of the economic Cerambycidae.

Lists of newly proposed and approved common names are published in the monthly ESA newsletter, which is available free of charge to active ESA members.

RATING CHANGES

During a recent meeting of the CDFA Pest Prevention Committee, rating changes were recommended for the following pests and these changes have subsequently been ratified:

1. Eugenia psyllid, *Trioza eugeniae*, from "Q" to "C"

2. Baileyana psyllid, *Acizzia acaciae-baileyanae* from "Q" to "C"

3. Southern green stinkbug, *Nezara viridula*, from "Q" to "B"

IMPORTANT NAME CHANGES

Several scientific name changes within the insect family Psyllidae have recently been reported in the CPPDR [pear psylla 5(3-4):219, 1986 and peppertree psyllid 7(1-4):3, 1988]. These particular name changes have dealt with species of economic significance to the state. However, a number of other name changes have been made in this family over the last few years due to some intensive studies of the world psyllid fauna by several European workers, including M. M. Loginova of the U.S.S.R., D. Burkhardt of Switzerland and I. D. Hodkinson and D. Hollis of Great Britain.

These name changes deal almost exclusively with generic revisions and subsequent changes in the generic status of a number of species of psyllids, including many from California. With the recent publication of "The Nearctic Psyllidae (Insecta: Homoptera): an Annotated Check List" by I. D. Hodkinson in the Journal of Natural History 22: 1179-1243, 1988, it was decided that it is necessary to list all of these changes so that previous collection records and labels on collections can be brought up to date. For a complete listing of the California psyllid fauna and the currently accepted names, please see the article on page 18.

SIGNIFICANT FINDS

ORIENTAL FRUIT FLY, *Dacus dorsalis*, -(A)- Oriental fruit flies have been found through the end of May. The following report by John Pozzi outlines the finds:

> A male Oriental fruit fly (OFF) was trapped May 11, 1989, in Sacramento. The fly was found in a Jackson/methyl eugenol trap placed in a fig tree along Morey Avenue.
>
> Sacramento County trapper Subhash Bansal is credited with finding the OFF.
>
> Jackson/methyl eugenol trap density in the area of the find was one trap per square mile. In response, the Sacramento County Department of Agriculture and CDFA are increasing the trap densities to protocol levels over an 81-square-mile area. Jackson/methyl eugenol and McPhail trap densities will be increased to 25 traps in the square mile surrounding the find site. Jackson/methyl eugenol trap density in the remaining 80 square miles will be raised to five per square mile.
>
> This is the first Oriental fruit fly ever to be trapped in Sacramento County. This find also represents the first OFF to be trapped this year in California.
>
> CDFA Insect Biosystematist Eric Fisher made the determination.

MEXICAN FRUIT FLY, *Anastrepha ludens*, -(A)- These reports by John Pozzi outline the finds through May:

> A male Mexican fruit fly was trapped March 22, 1989, in Santa Ana, Orange County. This is the first Mexican fruit fly to be trapped this year in California.
>
> Orange County Department of Agriculture Technician, Jose Ramos, found the Mexican fruit fly in a McPhail trap placed in a loquat tree on Lingan Lane.
>
> McPhail trap density in the area of the find was five per square mile. Orange County Department of Agriculture is in the process of increasing McPhail trap densities to a 80-40-20-10-5 array in the surrounding 81 square mile area.
>
> CDFA Insect Biosystematist Karen Corwin determined that the male Mexican fruit fly was sexually immature.
>
> CDFA Agricultural Inspector Mike Murphy found a female Mexican fruit fly on April 14, 1989, in a McPhail trap in the Logan Heights area of the city of San Diego. The trap was placed in a grapefruit tree along Clay Avenue.
>
> McPhail trap density in the area is 90 traps per square mile. A high trap density

is maintained throught the year in this area of San Diego County because of the potential threat of Mexican fruit fly being introduced into California.

CDFA Insect Biosystematist Karen Corwin determined that the female Mexican fruit fly was sexually immature and unmated.

A sexually immature male Mexican fruit fly was trapped April 20, 1989, in Santa Ana, Orange County. CDFA Agricultural Inspector Rajinder Brar found the fruit fly in a McPhail trap placed in a loquat tree along Bishop Street. The find site is about two miles northeast from a Mexican fruit fly trapped March 22, on Lingan Lane.

McPhail trap density in the area was 20 traps per square mile. McPhail trap densities are being increased as needed to meet protocol levels.

CDFA Insect Biosystematist Eric Fisher determined that the male Mexican fruit fly was sexually immature and showed no signs of irradiation damage to the testes.

MELON FLY, *Dacus cucurbitae*, -(A)- Specimens of this fruit fly pest were last found in California on November 21, 1987. It was recently found again and the following report details the find.

A sexually immature male melon fly was trapped May 4, 1989, in West Covina, Los Angeles County. It was found in a McPhail trap placed in a loquat tree along Lynn Court.

Los Angeles county trapper Pablo Busatto is credited with finding the melon fly.

McPhail trap density in the area is five traps per square mile. In response to the find, the Los Angeles County Department of Agriculture is increasing the number of McPhail and Jackson/cue-lure traps in an 81-square-mile area around the find site to protocol levels for new melon fly finds.

CDFA Insect Biosystematist Eric Fisher made the determination.

NEW STATE RECORDS

VARROA MITE, *Varroa jacobsoni*, -(Q)- Non-quarantine specimens of this mite have been found for the first time infesting state apiaries. The following report outlines the details of the original find and subsequent finds associated with this first record. Two varroa mites were detected on January 4, 1989, in Rubidoux, Riverside County. Riverside County Department of Agriculture Apiary Inspector Bill Oesterlein is credited with finding the varroa mite.

The apiary consists of 110 colonies and, according to the beekeeper, it has not been outside of the State since 1987. However, this apiary was targeted because

of its involvement with another beekeeping operation which earlier entered California under quarantine and which had been found infested.

The apiary has been placed under hold order pending abatement of the pest as provided in the Apiary Protection Act. The beekeeper has the options of removal from the State, destruction, or treatment at his expense using fluvalinate (Apistan strips). A one-mile radius around the apiary has been surveyed for other apiaries. The results were negative.

A second apiary was confirmed January 26, 1989, in Corona, Riverside County, to be infested with *Varroa jacobsoni*. Riverside County Department of Agriculture biologist Bill Oesterlein is credited with finding the varroa mites.

The apiary consists of 120 colonies which reportedly have not been outside of the State, but recently was relocated from San Bernardino County. Any apiary operated in your county by this beekeeper should be tested with Apistan if you have not done so already.

The apiary has been placed under hold order pending abatement of the pest as provided in the Apiary Protect Act. The beekeeper has the options of removal from the State, destruction or treatment at his expense, using Apistan strips. Exposed apiaries within a one-mile radius around the infested apiary and its previous location of Summit Valley are being sampled.

A third apiary operated by the same beekeeper was confirmed February 14, 1989, in Corona, Riverside County, to be infested with *Varroa jacobsoni*. Riverside County Department of Agriculture Biologists Bill Oesterlein and Tom Vizthum are credited with finding the varroa mites.

The apiary, originally containing 160 colonies, now consists of 182 colonies which reportedly have not been outside of the State, but recently were relocated from Kern and San Bernardino Counties.

The apiary has been placed under hold order pending abatement of the pest as provided in the Apiary Protection Act. The beekeeper has elected the option of treatment at his expense using Apistan strip. Exposed apiaries within a one-mile radius around the infested apiary are being sampled.

A fourth apiary was confirmed February 27, 1989, in Corona, Riverside County, to be infested with *Varroa jacobsoni*. Riverside County Department of Agriculture Biologist Tom Vizthum is credited with finding the varroa mites.

The apiary consists of 137 colonies which reportedly have not been outside of the State, but recently were relocated from Kern County.

The apiary was placed under hold order pending abatement of the pest as provided in Section 29112 of the Apiary Protection Act. There are no exposed

apiaries within a one-mile radius around this apiary location.

A fifth apiary was confirmed March 8, 1989, at Panoche Road and I-5 in Fresno County to be infested with *Varroa jacobsoni.* Fresno County Department of Agriculture Biologist Lance Hofer is credited with finding the varroa mite.

The apiary consists of 344 colonies of which 281 containing Apistan strips were recently moved from apiaries under hold/treatment in Riverside County. The positive identification was from the remaining 63 colonies which had been commingled with the treated colonies.

The apiary was placed under hold order (Section 5701) on March 1, 1989. Apistan strips were placed in all colonies in the apiary and tested at the 10 percent level at that time. The infested apiary will be treated for 30 days and is tentatively scheduled for release on March 31, 1989.

Exposed apiaries are being held for testing within a one-mile radius from the infested apiary. Section 5701 can be utilized for the purpose because of this detection.

The varroa mite is a parasite of several species of honey bee, including *A. mellifera* in the U.S. and *A. cerana* in Asia. This mite is rather large, making it visible to the unaided eye. The average female mite is approximately 1.5 mm x 1 mm and has a brown to reddish-brown color. The male averages 0.85 mm x 0.80 mm, whitish to pale tan.

Originally a minor native Asian parasite, the varroa mite mainly infested the *A. cerana* honey bees, although it did not cause these bees significant infestation problems due to highly evolved grooming habits. Via the trading of queens and brood, the mite spread through Russia, eventually making its way through Bulgaria in 1967 to Romania in 1974, and to Tunisia and Libya in 1976. The mite had arrived in Europe and spread further through swarms, drifter bees and robbing. Although it had spread to South America by 1982, the mite was not discovered in the United States until September 25, 1987. No one knows exactly how the varroa mite entered the U.S., but many suspect it was through a shipment of packaged queens and brood. Several states are now infested with the mite.

Once the female mite has attached itself to a host bee, it enters the hive and it makes its way to the larval cells. The cells of drone brood are preferred to worker or queen brood because of the longer development time. It is there that the mite resides in the larva food until the cell is capped. The mite then feeds on the prepupa for the next 60 hours, after which time she lays one to six eggs.

It takes five to six days for the male and seven to eight days for the female egg to mature. Both adult and immature mites feed on the brood's hemolymph. The mites mate within the cell. Soon after mating, the male dies. When the bee emerges from its cell, the female mite, with a reservoir of sperm and able to lay fertile eggs for the rest of its life, attaches itself to the soft, intersegmental membrane of the bee. It then uses its chelicerae to pierce the surface of the bee's

exoskeleton to drain the bee's hemolymph. The mature female mites are particularly attracted to younger bees because the mite appears to thrive on the bee's juvenile hormone (JH).

The damage that the mite does to the developing brood is extensive. Bees that develop from infested brood often emerge 25 percent smaller than normal or they may have deformed wings and legs, as well as a shortened abdomen. An adult bee may even emerge apparently normal, but its life span will be significantly shortened. If a brood cell is infested with five or more mites, it can die before emergence. Overall, the colony health eventually declines, although the total damage to the hive may not be detected for years. The mite can complete two and one-half life cycles for every one life cycle of the honey bee, which allows the mite to reproduce rapidly. Infestation is greatest in the spring and in the fall. The female mites overwinter six to eight months attached to adult bees. The mites spread through close contact between the bees in the hive. Infestation is the most extensive in weak hives where there is mostly brood.

The economic impacts incurred by this parasite are expected to be extensive if the mite is not brought under control. More than $20 billion worth of agriculture in the U.S. depends on bee pollination. Without that pollination, high value crop loss can be expected. California estimates $2.8 billion worth of commodities dependent on or assisted by honey bees for production. Hundreds of commercial bee keepers stand to lose millions for pollination services and honey sales, as well as in sales for packaged brood and queens.

Not every country, however, reports significant impacts of the varroa mite on honey bee production. Reports from Brazil (DeJong et al, 1984b) and Uruguay (Ramirez 1986) suggest that the varroa mite is far less harmful than previously supposed. The varroa mite also appears to have little effect upon the Africanized bee (DeJong et al, 1984b.)

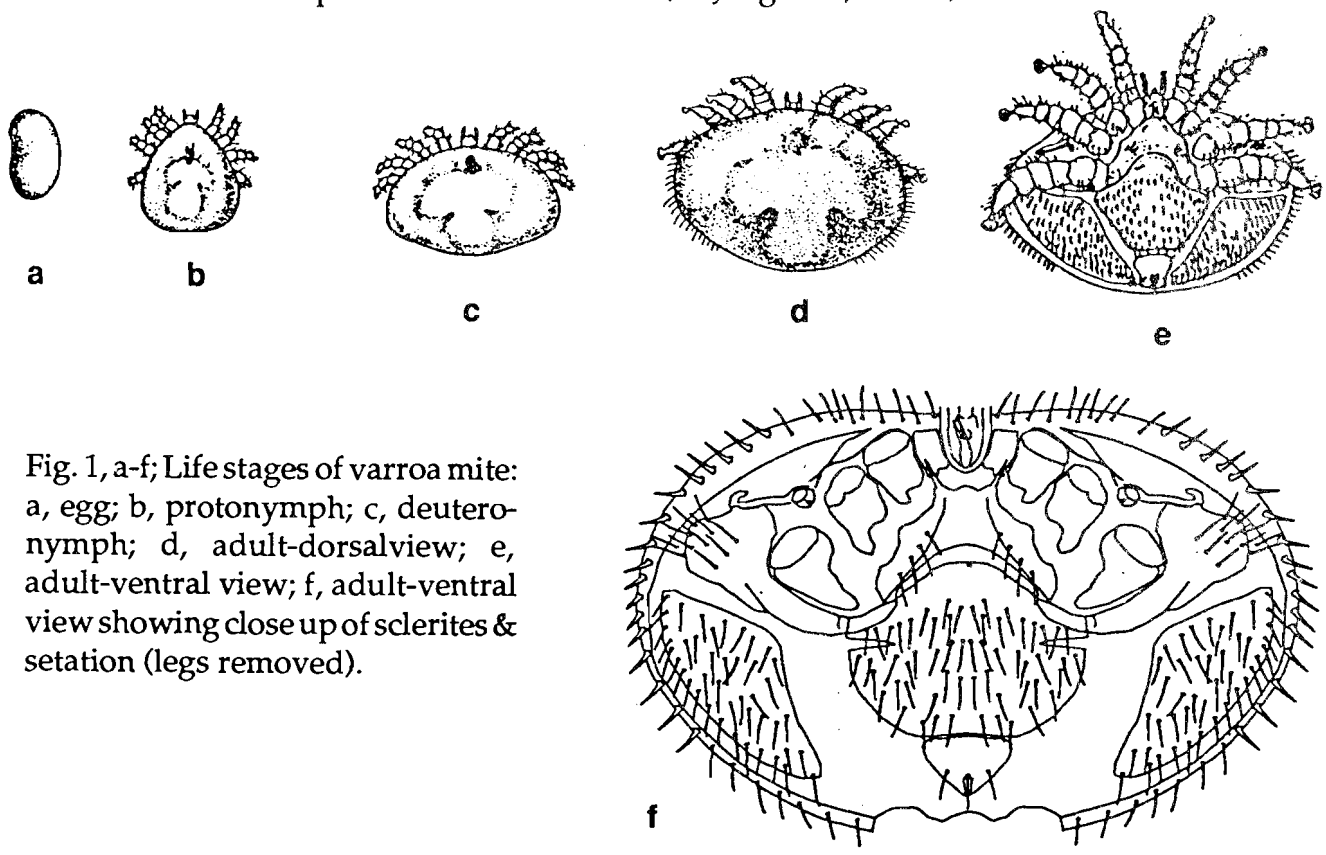


Fig. 1, a-f; Life stages of varroa mite: a, egg; b, protonymph; c, deutero-nymph; d, adult-dorsalview; e, adult-ventral view; f, adult-ventral view showing close up of sclerites & setation (legs removed).

HACKBERRY NIPPLEGALL MAKER, *Pachypsylla celtidismamma*, -(Q)- Leaf galls and first instar nymphs of what is probably this species of psyllid (Homoptera: Psyllidae) were found in Modesto, California, on May 4, 1989, by S. Bradford. The psyllid was collected from a species of hackberry, *Celtis occidentalis*. This psyllid species is native to the eastern and midwestern portions of the U.S. where it is restricted to trees and shrubs in the genus *Celtis*.

There is little doubt that this gall forming psyllid is correctly identified at this time, but a final determination is pending until mature galls and adult specimens can be studied this fall. The psyllid is the second species in this genus to be introduced into California. The closely related hackberry blister gall psyllid, *Pachypsylla celtidisvesiculum*, was first collected in California on April 29, 1960, at Fresno by then County Entomologist H. V. Dunnegan. The blister gall psyllid differs from the nipple gall maker primarily in the shape of the gall, which is a flat (in profile) blister gall in the former species and a sharply protruding dome-like gall in the latter. The blister gall psyllid is well established in the Fresno area and is still collected there on occasion.

Leaves containing galls of this species often drop from the trees and accumulate in crevices such as the recessed windshield wiper ports of some models of automobiles. The galls are often detected.

The hackberry nipplegall maker has one generation a year. The adults overwinter in crevices in the bark of hackberry trees, and in cracks and crevices of nearby buildings. During the first warm days of April, the adults become active and fly to hackberry trees. Mating and egg laying begin during late April and continue until the end of May (Smith and Taylor 1953). Soon after mating, eggs are deposited on the new leaves of hackberry. About a week later the eggs hatch. The nymphs are motile for only a short time, then begin feeding. The leaf tissues soon cover the nymphs. An interval of 10 to 12 days occurs between hatching and gall formation. Five nymphal stages live inside the galls throughout the summer, emerging as fifth instars about the middle of September.

The nymph of the fifth instar appears "restless" just before emergence from the gall. It positions itself in such a way that the tip of the abdomen is directed towards the basal portion of the gall. With repeated thrusts of the abdominal spines against this area, a passageway is made to the surface of the leaf. It moves a short distance from the gall and remains there until the final molt which usually occurs about 30 minutes later.

The adults of *P. celtidismamma* are dark insects having the general appearance of small cicadas. The females are larger than the males and can be distinguished from the latter by the pointed abdomen. The last segment of the male abdomen is formed into a forked genital process. The jumping behavior of both sexes is somewhat similar to that of spittle bugs. Adults of *P. celtidisvesicula* are similar to those of *P. celtidismamma* and behave similarly, but are somewhat smaller in size.

During the autumn months, homeowners with hackberry trees in the vicinity are usually annoyed with the adults invading their buildings. If outdoor painting is attempted during the period of adult emergence, the insects become extremely troublesome by accumulating in the fresh paint.

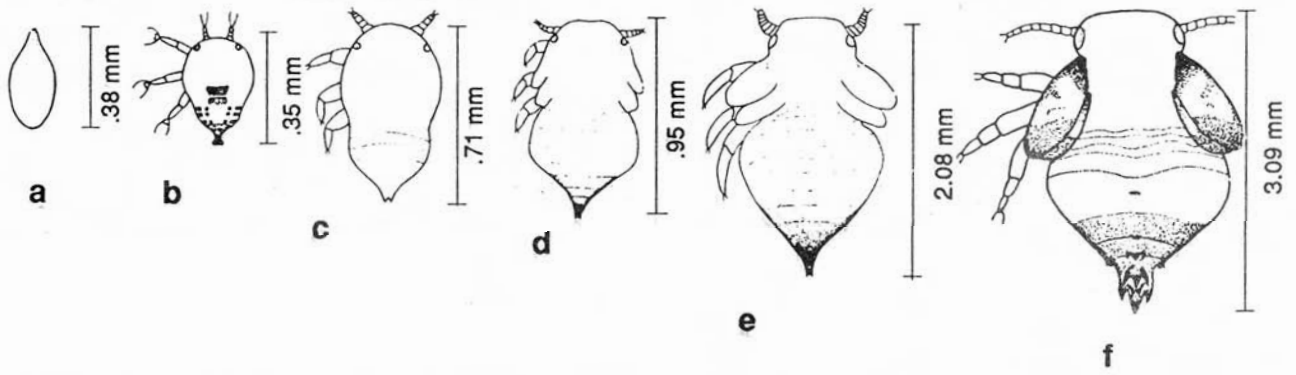


Fig. 2 a-f: Stages of *Pachypsylla celtidismamma*; a, Egg; b, First Instar; c, Second Instar; d, Third Instar; e, Fourth Instar; f, Fifth Instar; g, Adult lateral view; h, Adult dorsal view.

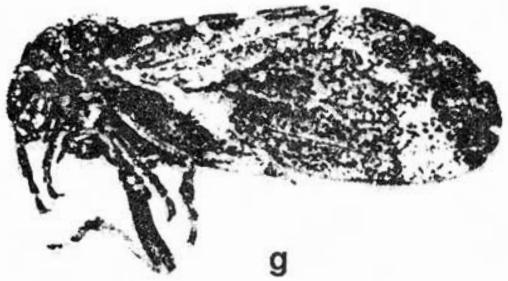
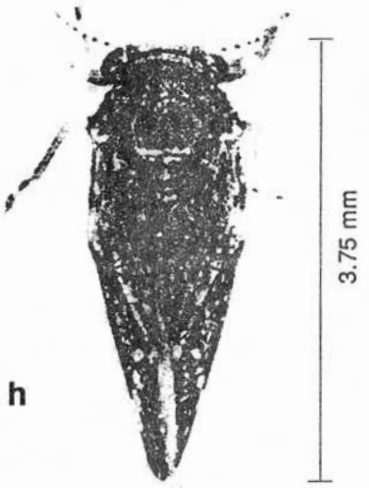


Fig. 2 i, Wing venation & color pattern



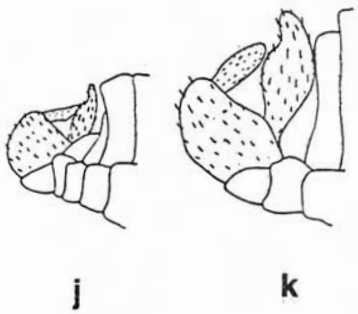


Fig. 2 j-k Male Genitalia, lateral view; j, *Pachypsylla celtidisvesicula* ; k, *P. celtisdismamma*

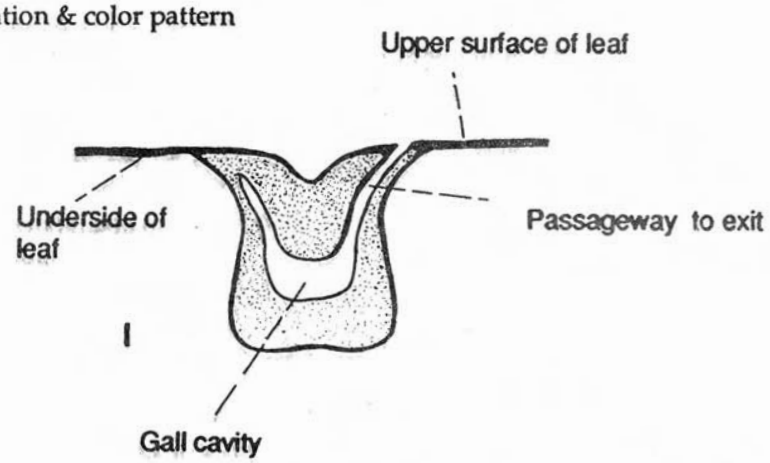


Fig. 2 l, Internal structure of a nipple gall, lateral view (partially diagrammatic).

Figures 2a-h and 2l were taken from Appleby & Neiswander, 1962: Biology and Control of the Hackberry Nipple and Blister Gall Makers. Ohio Ag. Exp. Stn. Res Circ. III, 24pp.

Figure 2i was taken from Patch, Edith M., 1912. Notes on Psyllidae. Maine Agr. Exp. Sta. Bull. 202, pp. 215-234.

Figures 2j-k were taken from Crawford, David L., 1914. A Monograph of the Jumping Plant-lice or Psyllidae of the New World. Smith. Inst. U. S. Nat. Mus. Bull. 85, 186 pp.

Upon hatching, the nymphs of *P. celtidivesicula* move to the upper surface of the leaf where they began feeding and become stationary. About a week later, they are enclosed within the leaf tissues. Tuthill (1943) indicates that the nymphs of *P. celtidismamma* feed on the lower side of the leaf and are soon enclosed within the gall.

A typical gall of *P. celtidismamma* during September is cylindrical, and occurs on the underside of the hackberry leaf. The apical portion is usually somewhat enlarged. A slight depression occurs on the upper side of the leaf opposite the gall. Variation in shape of galls was noted. In some instances, fusion of galls was observed.

The tissues surrounding the cavity are hard and gritty. The cavity is crescent-shaped and narrow. M.T. Cook (1904) mentioned that four well defined zones occur in young galls, but later in development most of the areas became quite hard possibly due to the abundance of sclerenchyma cells

At Wooster, Ohio, during 1960, parasites played an important role in the control of the nipple gall maker. Of 100 gall cavities examined on August 19, 47 percent of the psyllid nymphs were parasitized. Another count made on September 17 showed 51 percent parasitism.

NEW COUNTY RECORDS

RUSSIAN WHEAT APHID, *Diuraphis noxia*, -(A)- This serious cereal pest was first detected last year in California in March near Calexico, Imperial County, and later last year in Yolo County. Since these initial detections, it has been found in 11 more counties including San Bernardino, San Benito, Santa Clara, San Joaquin, Riverside, Kern, Los Angeles, Fresno, Sacramento, Solano, and Contra Costa.

CDFA and the University of California are cooperating in a survey for Russian wheat aphid in California. The map provided graphically displays California distribution by county. The following reports outline the specific details of each county record.

San Bernardino County

Russian wheat aphid, *Diuraphis noxia*, was found January 29, 1989, near Hinkley, about 12 miles west of Barstow, San Bernardino County. A pest control operator spotted the aphid on volunteer barley in an alfalfa seedling field. University of California Farm Advisor Steve Orloff made the initial determination and final confirmation was made by CDFA Associate Insect Biosystematist John Sorensen.

The Russian wheat aphid was found March 24, 1989, near Hollister, San Benito County. A grower found the aphid in a 150-acre wheat field along Shore Road and submitted the specimen through the Santa Clara County Department of Agriculture field office in Morgan Hill. Final confirmation was made by CDFA Associate Insect Biosystematist John Sorensen.

CDFA and the University of California are cooperating in a survey for Russian wheat aphid in California.

Santa Clara County

The aphid was found by G and K Farms on March 28, 1989, in a 140-acre wheat field along Las Animas Road. A sample was submitted to Kevin O'Day, Supervising Agricultural Biologist, with the Santa Clara County Department of Agriculture. These are the same growers that found Russian wheat aphid in another of their fields in San Benito County.

San Joaquin County

Russian wheat aphid was found March 29,1989, on volunteer wheat in a 20-acre field near Manteca. Pest Control Advisor John Curtoni, with J.R. Simplot Company, made the discovery and submitted specimens to the San Joaquin County Department of Agriculture field office in Manteca. Initial identification was made by Senior Agricultural Inspector Dan Giesing.

Los Angeles County

Russian wheat aphid has been detected for the first time in Los Angeles County. The aphid was first found by University of California Professor of Entomology Vern Stern, near Lancaster. He contacted the Los Angeles County Department of Agriculture, and District Inspector Gary Monk collected specimens for official records from a barley field on April 6, 1989. Initial identification was made by Los Angeles County Department of Agriculture Entomologist, Rosser Garrison.

Fresno County

Russian wheat aphid was found on April 28, 1989, near Firebaugh in Fresno County. A local pest control advisor, Dave Graber, spotted the aphid in a 100-acre barley field. This is the first time it has been detected in Fresno County.

Initial identification was made by Fresno County Department of Agriculture Entomologist Norm Smith.

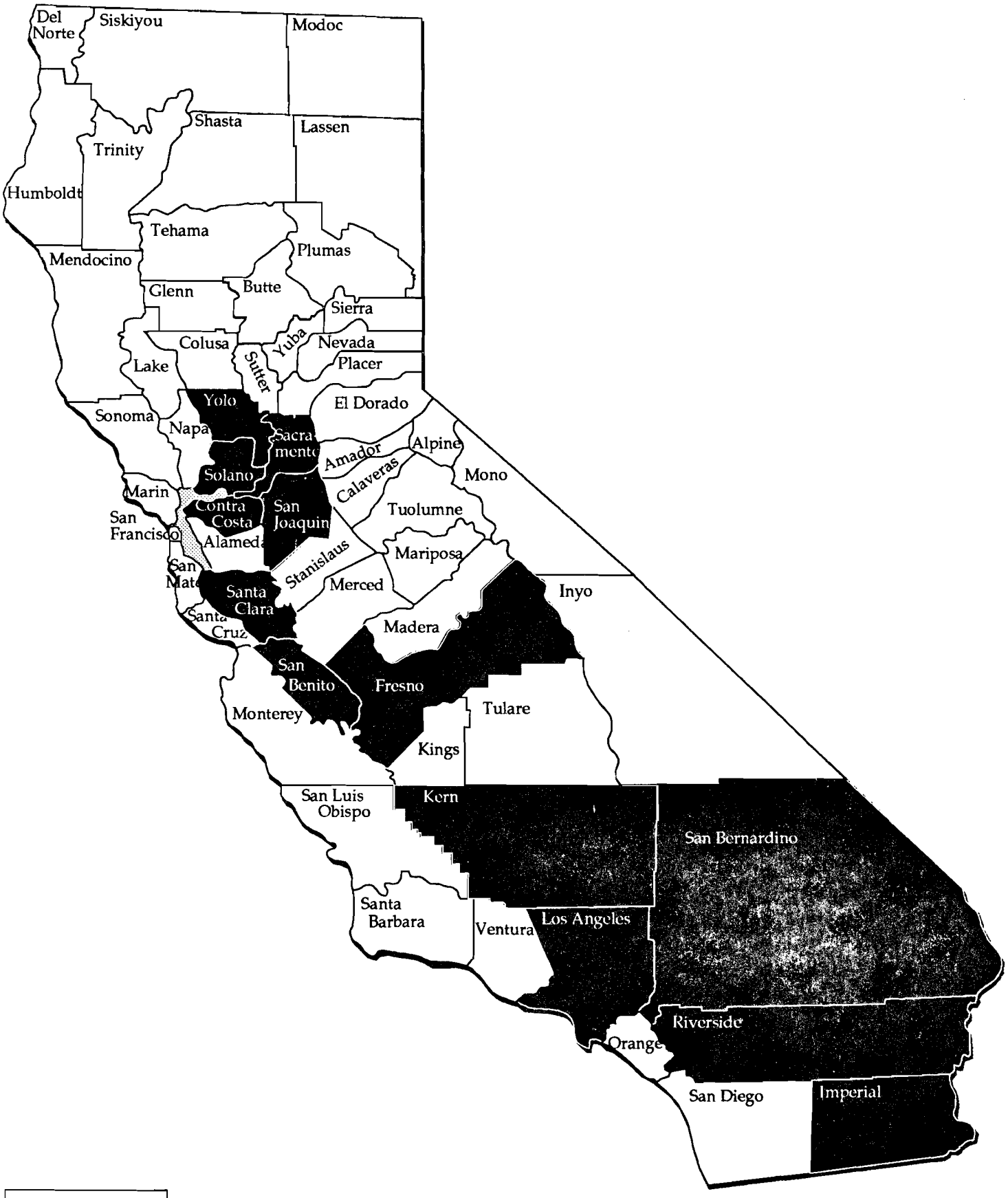
Riverside County

Russian wheat aphid has been detected for the first time in Riverside County. The aphid was found on April 3, 1989, in three barley fields near Riverside. University of California Professor of Entomology Vern Stern. Riverside County Department of Agriculture Entomologist Eldon Reeves and U.C. Staff Research Associate Ralph Hannibal are credited with finding the aphid.

Sacramento County

Russian wheat aphid has been found for the first time in Sacramento and Solano Counties.

California Distribution of Russian Wheat Aphid
(as of May 12, 1989)



Map by:
R.J. Gill

The aphids were found April 14, 1989, in a wheat field on Tyler Island near Walnut Grove. Kevin Hoary, who is a pest control advisor with Barry Farm Supply, is credited with finding the Russian wheat aphid. Specimens were submitted to Jack Orr with the University of California Extension Service.

Solano County

The aphids were found April 27, 1989, in a 50-acre wheat field near Dixon. Solano County Department of Agriculture Biologist Jeff Erwin collected the specimens and submitted them to CDFA for confirmation.

Contra Costa County

Russian wheat aphid has been found for the first time in Contra Costa County. The aphids were found May 11, 1989, in wheat fields near Brentwood and Byron. Contra Costa County Department of Agriculture Biologists Richard Mello and Cathy Roybal spotted wheat fields showing typical signs of Russian wheat aphid damage and submitted specimens to CDFA.

A WHITEFLY, *Paraleyrodes* sp., -(Q)- This undescribed whitefly is a tropical American species which was first found established in California on July 12, 1985, in the Hillcrest area of San Diego [CPPDR 4(4):111, 1985]. It is becoming a rather serious problem on citrus and several other hosts in the San Diego area, primarily because of the copious amounts of wax and honeydew that it produces. Although currently undescribed, a researcher in the Near East is reportedly in the process of describing the species, where it has recently been found.

It has now been found in a new California location also. It was collected April 25 at Santa Ana, Orange County, by N. Nisson and M. Tafreshnia. All stages of development were found on the Valencia orange host.

ASH WHITEFLY, *Siphoninus phillyreae*, -(Q)- This newly introduced whitefly species [See CPPDR 7(1-4):10-12, 1988] was first found severely attacking ash trees in the San Fernando Valley of Los Angeles County. It was subsequently found in Orange and San Bernardino Counties as well as in two nurseries in San Diego County. The whitefly was found for the first time in Riverside County where it was collected on March 16 on the U.C. Riverside campus by university scientists. During June, Orange County conducted a county-wide survey by checking four known hosts every four square miles. They found the whitefly generally distributed throughout the county and as far south as Dana Point. They did not find it in San Clemente, which is the southern-most Orange County city. This is about 20 miles north of Oceanside, the nearest major city in San Diego County.

Also, it was discovered this winter that this whitefly will do well on citrus in California. It was found overwintering in all stages on several citrus varieties in the Los Angeles and Azuza areas of Los Angeles County and it was also found infesting several other varieties in Orange County. The following list is an updated version of the known world host list for ash whitefly:

(Bean Family) **Leguminosae:**	*Afzelia* sp. (pod mahogany)
(Olive Family) **Oleaceae:**	*Fraxinus excelsior* (ash)
	Fraxinus ornus (ash)
	Fraxinus syriaca (ash)
	Fraxinus (Cal.) (ash)
	Olea chrysophylla (wild olive)
	Olea europa (common olive)
	Phillyrea latifolia (phillyrea)
	Phillyrea media (phillyrea)
(Pomegranate Family) **Punicaciae:**	*Punica granatum* (pomegranate) (Cal.)
(Buckthorn Family) **Rhamnaceae:**	*Rhamnus alaternus* (Buckthorn)
	Ziziphus spina-christi (jujube)
(Rose Family) **Rosaceae:**	*Crataegus mollis* (hawthorn)
	Crataegus oxyacantha (hawthorn)
	Crataegus monogyna (hawthorn)
	Cydonia oblonga (quince)
	Eriobotrya deflexa (golden loquat) (Cal.)
	Mespilus sp. (medlar)
	Prunus persica (peach)
	Pyrus callerana (Cal.) (ornamental pear)
	Pyrus communis (pear) (Cal.)
	Pyrus kawakamii (flowering pear) (Cal.)
	Malus domestica (apple)
	Heteromeles arbutifolia (Cal.) (Cal. Christmas berry)
	Pyrus sativa (pear)
(Citrus Family) **Rutaceae:**	*Citrus* sp., including lime, valencia orange, navel orange, meyer lemon and tangerine (Cal.)

EUGENIA PSYLLID, *Trioza eugeniae*, -(C)- The rating for this psyllid pest of eugenia bushes has recently been changed from "Q" to "C." It was first found in California when a homeowner in Inglewood, Los Angeles County, brought the psyllid to the Los Angeles County Department of Agriculture for identification on May 4, 1988 [CPPDR 7(1-4):12-13, 1988]. Part of the reason for the change in rating is the rapid dispersal of the species to many of the major urban areas of California. Several new county records have been recorded during this period.

County	City	Date	Collector
Ventura	Moorpark	12/15/88	Klittich
San Mateo	San Mateo	1/30/89	Pummer
Santa Clara	San Jose	2/6/89	Williams
Alameda	Oakland	2/9/89	Dreistadt
San Francisco	San Francisco	4/3/89	ABY
Contra Costa	San Ramon	4/10/89	Kean
Santa Cruz	Capitola	5/9/89	Morton

Other infested counties include: Los Angeles, Orange, Santa Barbara, San Diego, and San Luis Obispo.

In another interesting development involving this species, it was found to be ovipositing and producing galls on a host other than eugenia. It was found on the closely related bottlebrush species *Metrosideros tomentosa*. The find was made in Gardena, Los Angeles County on May 10, 1989 by Steve Rawald. Only small, newly formed galls, eggs and first instar nymphs were present on the sample, so it is not known at this time if the psyllid will cycle through on this host.

Pest Exclusion

Avocado Seed Weevil, *Heilipus lauri*, -(A)- The following Pest Exclusion report outlines more details involving the find of this avocado pest in Berkeley last year:

> Exclusion Biologist Eugene Fife, along with Alameda County Biologist Bob Blumenthal, were among several state and county employees who investigated the recent finding of avocado seed weevil, *Heilipus lauri*, at the U.C. Berkeley Botanical Gardens. This weevil, which is a tropical species, is an "A"-rated pest. A single adult was found inside the Botanical Gardens orchid greenhouse in November, 1988 [CPPDR 7(5-6):83]. After it had been identified, there was naturally concern as to how it may have arrived in the Gardens. Investigation turned up the fact that several avocado seeds from an indigenous wild type avocado had been brought from Costa Rica to the Gardens several months before. The seeds were planted in the greenhouse in a single container in July. It was right beside that container that the weevil later made its appearance in the greenhouse.
>
> The specimen plant was taken into custody and the seeds proved upon dissection to have been tunnelled through and riddled. However, no other weevils, juvenile or adult, have been discovered in this situation. The plant remains have now been turned over to CDFA Insect Biosystematist Terry Seeno, who made the original identification.
>
> The seeds were originally collected in Costa Rica by a U.C. botanist on a collecting expedition. This seed and other material were declared upon entry into the United States at Miami. The federal inspector apparently overlooked the possibility that it might harbor the weevil or other pests in the juvenile form and passed it through.
>
> A survey of the Gardens around the greenhouse turned up little or no host material nearby for this weevil, so there is optimism at this point that a full scale eradication effort will not be necessary. The Gardens, as a university research facility, has appropriate federal CITES permits for the collecting activity undertaken.

SIGNIFICANT FINDS IN OTHER STATES

NEW NORTH AMERICAN RECORDS

As noted on Page 71 of a previous issue of CPPDR [7(1-4):71], the CDFA Analysis and Identification Branch has a contract with USDA, APHIS, PPQ, to maintain new pest records and to enter these records in the National Agricultural Pest Information Service (NAPIS) and the Cooperative Agricultural Pest Survey (CAPS). This information on each new pest is entered into the NAPIS database and then transmitted to Survey Coordinators in the 50 states, U.S. protectorates, and various other countries maintaining USDA, APHIS offices. The following reports outline the findings of two new pests in the continental U.S. This new U.S. record feature will now become a regular part of the CPPDR in an effort to alert and inform California agriculturalists and regulatory officials of new introduction threats.

Coleoptera: Curculionidae, Cossoniae. An occurence of *Amaurorhinus bewickianus,* at Wollaston in Charleston, SC has been confirmed by D.R. Whitehead, Res. Entomologist, Systematic Entomology Lab, Plant Science Institute, USDA, Beltsville.

The discovery was made by a pest control company in the Charleston area on March 3, 1989. They are definitely causing serious damage under a restored building in load bearing pine timbers which were very damp (moisture > 20%).

Homoptera: Pseudococcidae. A mealybug, *Miscanthicoccus miscanthi* Takahashi, was found in a nursery in Rockbridge County, Virginia and in a nursery in Maryland. This insect was found in February of 1989 on Maiden Grass, *Miscanthus sinensis.* The specimen was sent to Systematic Entomology Laboratory, Plant Science Institute, USDA, Beltsville where it was identified by Victor Blackburn.

It was found close to the base of the stem and under the leaf sheath. The nursery had the grass for three years but did not observe the mealybug until they brought the potted plants into the greenhouse for the first time. In the temperate coastal regions of Maryland and Virginia this mealybug is apparently only a problem in greenhouse situations and is specific only to *Miscanthus sinensis.* The Ad Hoc Committee determined that further action, other than alerting State officials, was not warranted. The economic impact of this mealybug is minimal; the scientific literature examined did not report economic damage.

BORDER STATIONS

Truckee's newspaper, *Sierra Sun*, published an article on February 23, 1989, about the Truckee border station and how its inspectors target cars for interception. Part of the reason for this article was the fact that the station no longer has through lanes for local traffic. These through lanes were originally designed to ease serious traffic congestion caused most frequently by holiday and weekend traffic and bad High Sierra weather. This traffic congestion was so serious back in the late 1960's that one congressman who had been caught in a traffic tie-up at a border station almost had the border stations closed permanently. Only through very diligent efforts by many concerned individuals were the border inspection stations kept operating. The Truckee station is the busiest out of all of the border stations. In January 1988 alone, 275,000 cars passed through and 472 interceptions of quarantined or prohibited material were made. In January 1989, 366,000 cars came through and inspectors made 617 interceptions. Although the Truckee inspectors are the ones who take most of the driver's complaints about delays, the inspectors believe that most of the people who come through the stations understand the importance of the station and what the inspectors are up against. Originally, the station had set aside two open lanes for local residents, but too many people were speeding through the station, and many drivers were using the lanes to bypass inspection. The station eventually closed the local lanes, making the station safer for both the travelers and the inspectors. The station also acts as the voice of the CHP and Caltrans, informing drivers of road conditions, hazards, etc., as well as giving directions.

In essence, the content of the *Sierra Sun* article was an attempt to inform Truckee area residents of the change in status of the local traffic lanes. The article contained a comprehensive review of the problems at the station, the purposes of the Border Inspection System and it contained a distinctly positive overview of Truckee Station operations. The article was quick to point out that although few vehicles may actually be inspected or contain serious pests, the cost of the stations is still less than an eradication program or losses to California.

One of the pests that have been intercepted with some regularity is the serious red imported fire ant, *Solenopsis invicta*.

As the red imported fire ant spreads across the country, more articles of both state and national interest are being published. On December 25, 1988, the *San Francisco Examiner* printed an article concerning the threat of *Solenopsis invicta* to the $4.4 billion superconducting supercollider site 30 miles south of Dallas, Texas. The red fire ant seems to have a particular attraction to electrical equipment, chewing through insulated wires and cables, devastating electrical systems of all kinds. According to the *Examiner*, one TEXAS MONTHLY article dubbed them "The Ants From Hell." The Energy Department just recently admitted that the ant posed "a potentially significant new issue" in the proposal for the superconductor site.

An in-depth article entitled *March of the Fire Ants* appears in the March 1989 issue of DISCOVER magazine. The author of the article interviewed Exclusion Biologist Dick Brown about border station statistics for interceptions made by California border stations. The Blythe

inspection crew also provided some human interest information based on their personal encounters with the fire ant.

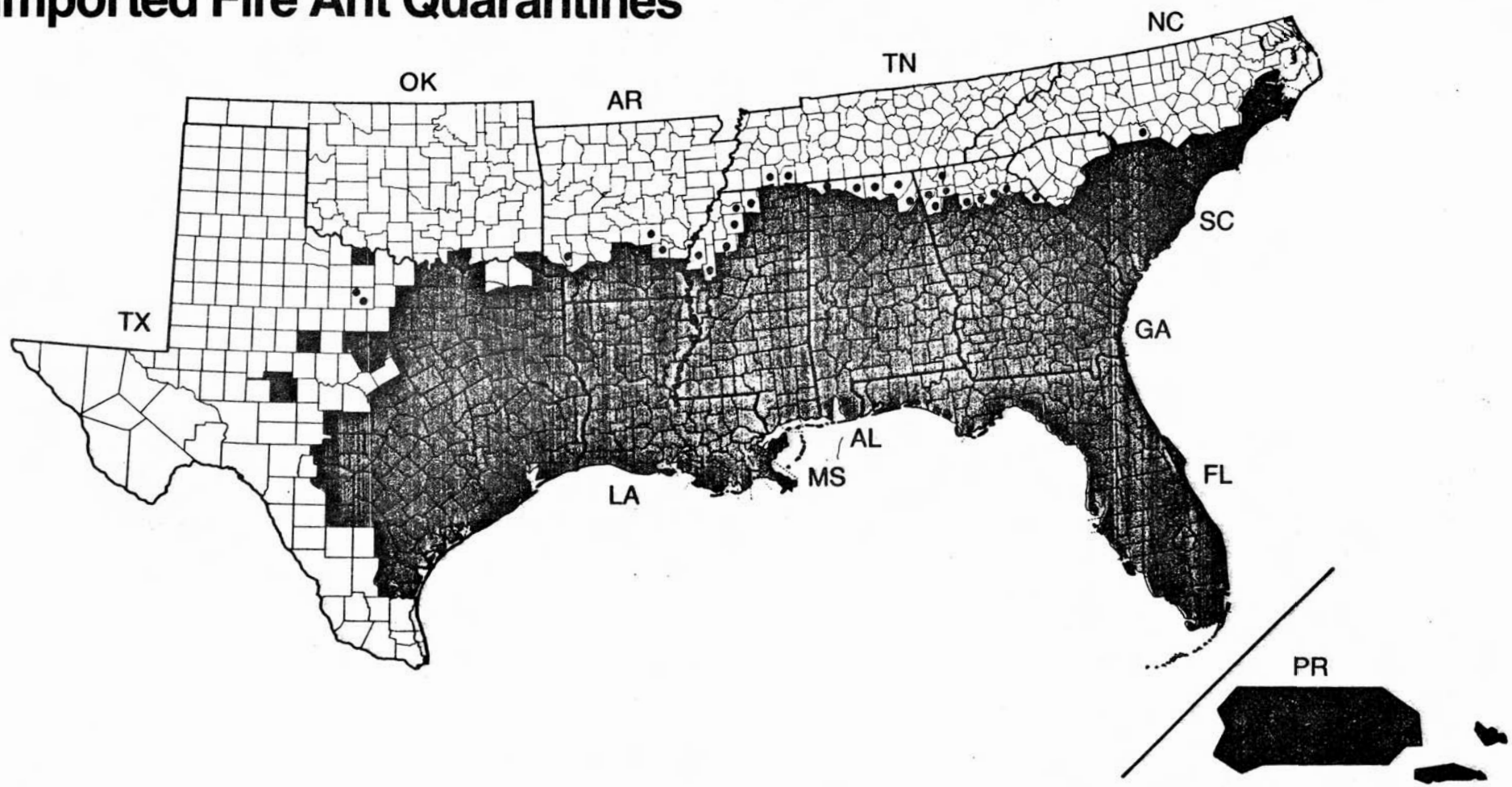
The Blythe station has reported four interceptions of red imported fire ants so far this year. The first interception, made by Inspector Ruben Armendariz on Janauary 26, 1989, uncovered *Solenopsis invicta* in commercial tomatoes from Mecca Farms, Lantana, Florida, being shipped by truck to Los Angeles. Similar interceptions were also made on Februrary 27, 1989, by Inspector Omar El-Nawasrah and on April 6, 1989, by Inspector Lance Ebert, the April interception having the heaviest infestation of the three.

An entire colony of *Solenopsis invicta* was also found at the Blythe station on March 18, 1989, in a balled crepe myrtle plant in soil from San Antonio, Texas. The unsuspecting pickup driver was on his way to Alameda County with his cargo. PQI William Walker and PQS Mike Ebers discovered the colony upon tearing open the canvas bag that held the native soil to the root system. PQS Glenn Moline captured the *Solenopsis invicta* queen and stored her in alcohol for lab confirmation. The soil, tree and plants were then doused with diesel fuel and set on fire.

At the Winter's station, live *Solenopsis invicta* adults were intercepted by inspector Maddy Garcia on April 7, 1989. The fire ants had infested houseplants from Pasadena, Texas, that were entering the state in a California auto.

Sometime in April, a shipment of Florida nursery stock was intercepted at the Needles station by San Joaquin County Biologist Lenard Groner. While doing a routine inspection, Groner discovered that the stock was infested with red imported fire ants. He sealed the truck and it continued on to Lodi, San Joaquin County, under quarantine warning notice. The infested stock was later destroyed by steam sterilization, and other stock in the shipment was treated with Diazinon. Detection traps baited with mint apple jelly were placed with the treated stock.

Imported Fire Ant Quarantines



Conditions of Movement

Counties entirely colored are completely regulated; counties partially colored are partially regulated.

Areas Infested with Imported Fire Ants

Restrictions are imposed on the movement of regulated articles from: Red areas into or through white areas.

Consult your State or Federal plant protection inspector or your county agent for assistance regarding exact areas under regulation and requirements for moving regulated articles. For detailed information see 7 CFR 301.81 for quarantine and regulations.

THE PSYLLIDAE OF CALIFORNIA

A Preliminary Checklist

By Raymond J. Gill

As mentioned on page 3 of this issue, a number of changes have occurred in the scientific nomenclature of the World Psyllidae. References to some of the major publications dealing with this subject are included with this article.

This checklist includes the species mentioned by Hodkinson (1988) as extant in California. It also includes several species which were introduced after Hodkinson's research was completed. No attempt has been made to study the collections of psyllids in various museums in California or elsewhere in an effort to find other records from California. Hodkinson studied only material from the U.S. National Museum, and most of his records are taken from previously published papers of other authors. Therefore this checklist is based solely on Hodkinson's work and on recent CDFA assession records. The included lists are meant only to notify interested individuals of the currently accepted generic status for California psyllids and to give them a general overview of the number of psyllid species in the state.

Two lists are included. The first includes the known California species listed in alphabetical order by species and includes also the old and new generic placements. The second contains the California species in order by generic grouping as well as information on the authorship of the species, date of description, old and new generic placements and other comments where applicable.

References to major works affecting the nomenclatural status of the California Psyllidae:

Burckhardt, D., 1988, Jumping plant lice (Homoptera: Psylloidea) of the temperate neotropical region. Part 3: Calophyidae and Triozidae, *Zoological Journal of the Linneaen Society*, **92**: 115-191.

Burckhardt, D. and Hodkinson, I., 1986, A revision of the west Palaearctic pear psyllids (Hemiptera:Psyllidae) *Bulletin of Entomological Research*, **76**, 119-132.

Heslop-Harrison, G., 1961. The Arytainini of the sub-family Psyllinae. Hemiptera-Homoptera, family Psyllidae—2. *Annals and Magazine of Natural History*, (13) **3**, 417-439.

Hodkinson, I. and Hollis, D., 1987, The legume-feeding psyllids (Homoptera) of the west Palaearctic Region., *Bulletin of the British Museum (Natural History)*, **56** (1): 1-86.

Journet, A. R. P. and Vickery, V.R., 1979, Studies on Nearctic *Craspedolepta* Enderlein 1921 (Homoptera: Psylloidea). Taxonomic revision. *Memoirs of the Lyman Entomological Museum and*

Research Laboratory, **7**, 1-164.

Klimaszewski, S. M., 1979, New data about North American species of *Craspedolepta* Enderl. and *Cerna* Klimaszewski. genera (Homoptera, Psylloidea). *Acta Biologica, Katowice*, **6**, 46-54.

Loginova, M. M., 1973. Taxonomy of the tribe Euphyllurini (Psylloidea, Homoptera). *Zoologicheskii Zhurnal*, **52**, 858-869.

Loginova, M. M., 1977. The classification of the subfamily Arytaininae Crawford (Homoptera: Psylloidea) II. *Entomologicheskoe obozrenie*, **56**, 577-587.

Loginova, M. M., 1978. Classification of the genus *Psylla* Geoffr. (Homoptera, Psyllidae). *Entomologicheskoe obozenie*, **57**, 808-824.

Ossiannilsson, F., 1970. Contributions to the knowledge of Swedish psyllids (Hemiptera: Psylloidea). *Entomologica Scandinavica*, **1**, 135-144.

PSYLLIDAE OF CALIFORNIA IN ORDER BY SPECIES

Species	Present Genus	Previous Genus
acaciae	*Aphalaroida*	
acaciae-baileyanae	*Acizzia*	*Psylla*
aculeata	*Ceanothia*	*Arytaina*
acuminata	*Cacopsylla*	*Psylla*
alacris	*Trioza*	*Lauritrioza*
alba	*Cacopsylla*	*Psylla*
albifrons	*Trioza*	
alni	*Psylla*	
americana	*Cacopsylla*	*Psylla*
angustipennis	*Craspedolepta*	*Aphalara*
anomola	*Craspedolepta*	*Aphalara*
arbuti	*Neophyllura*	*Euphyllura*
arctostaphyli	*Neophyllura*	*Euphyllura*
assimilis	*Ceanothia*	*Arytaina*
asiraea	*Trioza*	
bakeri	*Trioza*	
beameri	*Trioza*	
bicolor	*Ceanothia*	*Arytaina*
bicolor	*Neophyllura*	*Euphyllura*
boharti	*Ceanothia*	*Arytaina*
breviantennata	*Trioza*	
breviata	*Cacopsylla*	*Psylla*
brevistigmata	*Cacopsylla*	*Psylla*
buxi	*Cacopsylla*	*Psylla*
californica	*Aphalaroida*	
californica	*Calophya*	
californica	*Trioza*	
calthae	*Aphalara*	
caricis	*Livia*	
caudata	*Craspedolepta*	*Aphalara*
ceanothi	*Ceanothia*	*Arytaina*
celtidisvesiculum	*Pachypsylla*	
cercocarpi	*Euphalerus*	
cercocarpi	*Pexopsylla*	
cockerelli	*Paratrioza*	

Species	Present Genus	Previous Genus
collaris	*Trioza*	
confusa	*Cacopsylla*	*Psylla*
coryli	*Cacopsylla*	*Psylla*
cubana	*Heteropsylla*	
curta	*Aphalara*	
curta	*Cacopsylla*	*Psylla*
dentata	*Aphalara*	
difficilis	*Cacopsylla*	*Psylla*
dilonchi	*Cacopsylla*	*Psylla*
dubia	*Paratrioza*	
eos	*Vailakiella*	
essigi	*Ceanothia*	*Arytaina*
eugeniae	*Trioza*	
fatsiae	*Cacopsylla*	*Psylla*
ficus	*Homotoma*	
floccosa	*Psylla*	
fraxinicola	*Psyllopsis*	
fremontiae	*Paraphalaroida*	*Paurocephala*
frontalis	*Trioza*	
fumida	*Craspedolepta*	*Aphalara*
furcata	*Craspedolepta*	*Aphalara*
fuscipennis	*Euglyptoneura*	*Arytaina*
gutierrezia	*Craspedolepta*	*Aphalara*
hirsuta	*Cacopsylla*	*Psylla*
incerta	*Trioza*	
inermis	*Aphalaroida*	
insignita	*Cacopsylla*	*Psylla*
insolita	*Ceanothia*	*Arytaina*
jugonervosus	*Euphalerus*	
lavaterae	*Paratrioza*	*Kuwayama*
lobata	*Trioza*	
loca	*Aphalara*	
loletae	*Trioza*	
longicauda	*Ctenarytaina*	
longicornis	*Trioza*	
lynceus	*Nyctiphalerus*	
macula	*Craspedolepta*	
maculata	*Aphalara*	
maculidracunculi	*Craspedolepta*	
maculipennis	*Paratrioza*	
magna	*Cacopsylla*	*Psylla*
magnicauda	*Cacopsylla*	*Psylla*
martini	*Craspedolepta*	*Aphalara*
media	*Cacopsylla*	*Psylla*
medicaginus	*Kuwayama*	
minor	*Cacopsylla*	*Psylla*
minuta	*Cacopsylla*	*Psylla*
minuta	*Euglyptoneura*	*Arytaina*
minuta	*Trioza*	
minutissima	*Craspedolepta*	*Aphalara*
mira	*Trioza*	
mitella	*Ceanothia*	*Arytaina*
nebulosa	*Craspedolepta*	*Aphalara*
nepos	*Euphalerus*	
nigranervosa	*Cacopsylla*	*Psylla*
nigrella	*Calophya*	
niveipennis	*Neophyllura*	*Euphyllura*
notapennis	*Cacopsylla*	*Psylla*
numerica	*Craspedolepta*	*Aphalara*
nupera	*Craspedolepta*	*Aphalara*

Species	Present Genus	Previous Genus
occidentalis	*Blastopsylla*	
occidentalis	*Trioza*	
omani	*Cacopsylla*	*Psylla*
parallela	*Cacopsylla*	*Psylla*
pararibesiae	*Cacopsylla*	*Psylla*
phoradendri	*Trioza*	
phorodendri	*Cacopsylla*	*Psylla*
pinicola	*Craspedolepta*	*Aphalara*
pruinosa	*Neophyllura*	*Euphyllura*
pubescens	*Purshivora*	*Arytaina*
pulchella	*Craspedolepta*	*Aphalara*
pyricola	*Cacopsylla*	*Psylla*
quadripunctata	*Trioza*	
rara	*Cacopsylla*	*Psylla*
ribesiae	*Cacopsylla*	*Psylla*
robusta	*Euglyptoneura*	*Arytaina*
rubra	*Calophya*	
rugipennis	*Euphalerus*	
rumicis	*Aphalara*	
russellae	*Craspedolepta*	
salicivora	*Trioza*	
sculptoconus	*Neotriozella*	
sequoiae	*Choricymoza*	
simila	*Aphalara*	
spartiophila	*Arytainilla*	*Arytaina*
spiculata	*Cacopsylla*	*Psylla*
spinifera	*Aphalaroida*	
striata	*Cacopsylla*	*Psylla*
stygma	*Trioza*	
suaedae	*Craspedolepta*	*Aphalara*
sulcata	*Trioza*	
tardiuscula	*Ceanothia*	*Arytaina*
tenuata	*Cacopsylla*	*Psylla*
texana	*Heteropsylla*	
trimaculata	*Psylla*	
triozomima	*Calophya*	
uncatoides	*Acizzia*	*Psylla*
vancouverensis	*Craspedolepta*	*Aphalara*
varians	*Trioza*	
veaziei	*Craspedolepta*	*Aphalara*
vermiculosus	*Euphalerus*	
viridis	*Craspedolepta*	*Aphalara*
viridis	*Trioza*	
vulgaris	*Craspedolepta*	
yosemitensis	*Cacopsylla*	*Psylla*

Psyllidae of California in Order by Genus

Species	Genus	Author	Year	Previous Genus	Comments
acaciae-baileyanae	*Acizzia*	Froggatt	1901	*Psylla*	Introduced f/Australia, 1954
uncatoides	*Acizzia*	(Ferris & Klyver)	1932	*Psylla*	Introduced f/Australia, 1987 [CPPDR 6(1-2):6-7]
calthae	*Aphalara*	(Linnaeus)	1758		
curta	*Aphalara*	Caldwell	1937		
dentata	*Aphalara*	Caldwell	1937		
loca	*Aphalara*	Caldwell	1937		
maculata	*Aphalara*	Caldwell	1937		
rumicis	*Aphalara*	Mally	1894		
simila	*Aphalara*	Caldwell	1937		
acaciae	*Aphalaroida*	Crawford	1914		
californica	*Aphalaroida*	Tuthill	1939		
inermis	*Aphalaroida*	Crawford	1914		
spinifera	*Aphalaroida*	Crawford	1914		
spartiophila	*Arytainilla*	(Förster)	1848	*Arytaina*	Introduced f/Europe, 1962
occidentalis	*Blastopsylla*	Taylor	1985		Introduced f/Australia, 1983 [CPPDR 2(2):77]
acuminata	*Cacopsylla*	(Jensen)	1956	*Psylla*	
alba	*Cacopsylla*	(Crawford)	1914	*Psylla*	
americana	*Cacopsylla*	(Crawford)	1914	*Psylla*	
breviata	*Cacopsylla*	(Patch)	1912	*Psylla*	
brevistigmata	*Cacopsylla*	(Patch)	1912	*Psylla*	
buxi	*Cacopsylla*	(Förster)	1848	*Psylla*	Introduced f/ Europe, 1934
confusa	*Cacopsylla*	(Tuthill)	1943	*Psylla*	
coryli	*Cacopsylla*	(Patch)	1912	*Psylla*	
curta	*Cacopsylla*	(Tuthill)	1943	*Psylla*	
difficilis	*Cacopsylla*	(Tuthill)	1953	*Psylla*	
dilonchi	*Cacopsylla*	(Caldwell)	1938	*Psylla*	
fatsiae	*Cacopsylla*	(Jensen)	1957	*Psylla*	Introduced f/ Japan, 1937
hirsuta	*Cacopsylla*	(Tuthill)	1938	*Psylla*	
insignita	*Cacopsylla*	(Tuthill)	1943	*Psylla*	
magna	*Cacopsylla*	(Crawford)	1914	*Psylla*	
magnicauda	*Cacopsylla*	(Crawford)	1914	*Psylla*	
media	*Cacopsylla*	(Tuthill)	1943	*Psylla*	
minor	*Cacopsylla*	(Crawford)	1914	*Psylla*	
minuta	*Cacopsylla*	(Crawford)	1914	*Psylla*	
nigranervosa	*Cacopsylla*	(Jensen)	1956	*Psylla*	
notapennis	*Cacopsylla*	(Jensen)	1956	*Psylla*	
omani	*Cacopsylla*	(Tuthill)	1943	*Psylla*	
parallela	*Cacopsylla*	(Crawford)	1914	*Psylla*	

Species	Genus	Author	Year	Previous Genus	Comments
pararibesiae	*Cacopsylla*	(Jensen)	1956	*Psylla*	
phorodendri	*Cacopsylla*	(Tuthill)	1939	*Psylla*	
pyricola	*Cacopsylla*	(Förster)	1848	*Psylla*	Introduced f/ Oregon, 1953; native to Europe
rara	*Cacopsylla*	(Tuthill)	1944	*Psylla*	One collection only, SMT Co. nursery
ribesiae	*Cacopsylla*	(Crawford)	1914	Psylla	
spiculata	*Cacopsylla*	(Jensen)	1951	*Psylla*	
striata	*Cacopsylla*	(Patch)	1911	*Psylla*	
tenuata	*Cacopsylla*	(Jensen)	1951	*Psylla*	
yosemitensis	*Cacopsylla*	(Jensen)	1951	*Psylla*	
californica	*Calophya*	Schwarz	1904		
nigrella	*Calophya*	Jensen	1957		
rubra	*Calophya*	Blanchard	1852		Introduced f/So. Amer., 1984 [CPPDR 3(5):119-21]
triozomima	*Calophya*	Schwarz	1904		
aculeata	*Ceanothia*	(Crawford)	1914	*Arytaina*	
assimilis	*Ceanothia*	(Crawford)	1914	*Arytaina*	
bicolor	*Ceanothia*	(Jensen)	1957	*Arytaina*	
boharti	*Ceanothia*	(Jensen)	1957	*Arytaina*	
ceanothi	*Ceanothia*	(Crawford)	1914	*Arytaina*	
essigi	*Ceanothia*	(Jensen)	1957	*Arytaina*	
insolita	*Ceanothia*	(Tuthill)	1943	*Arytaina*	
mitella	*Ceanothia*	(Jensen)	1957	*Arytaina*	
tardiuscula	*Ceanothia*	(Bliven)	1958	*Arytaina*	
sequoiae	*Choricymoza*	Bliven	1955		Generic status questionable (Triozinae)
angustipennis	*Craspedolepta*	(Crawford)	1911	*Aphalara*	
anomola	*Craspedolepta*	(Crawford)	1914	*Aphalara*	
caudata	*Craspedolepta*	(Crawford)	1914	*Aphalara*	
fumida	*Craspedolepta*	(Crawford)	1938	*Aphalara*	
furcata	*Craspedolepta*	(Caldwell)	1936	*Aphalara*	
gutierrezia	*Craspedolepta*	(Klyver)	1931	Aphalara	
macula	*Craspedolepta*	Journey & Vickrey	1979		
maculidracunculi	*Craspedolepta*	Journey & Vickrey	1979		
martini	*Craspedolepta*	(Van Duzee)	1924	*Aphalara*	
minutissima	*Craspedolepta*	(Crawford)	1911	*Aphalara*	
nebulosa	*Craspedolepta*	(Zetterstedt)	1840	*Aphalara*	
numerica	*Craspedolepta*	(Caldwell)	1941	*Aphalara*	
nupera	*Craspedolepta*	(Van Duzee)	1923	*Aphalara*	
pinicola	*Craspedolepta*	(Crawford)	1914	*Aphalara*	
pulchella	*Craspedolepta*	(Crawford)	1911	*Aphalara*	
russellae	*Craspedolepta*	Klimaszewski	1977		
suaedae	*Craspedolepta*	(Crawford)	1914	*Aphalara*	
vancouverensis	*Craspedolepta*	(Klyver)	1931	*Aphalara*	
veaziei	*Craspedolepta*	(Patch)	1911	*Aphalara*	

Species	Genus	Author	Year	Previous Genus	Comments
viridis	*Craspedolepta*	(Crawford)	1914	*Aphalara*	
vulgaris	*Craspedolepta*	Journey & Vickrey	1979		
longicauda	*Ctenarytaina*	Taylor	1987		Introduced f/Australia, 1983 [CPPDR 2(4):109]
fuscipennis	*Euglyptoneura*	(Crawford)	1914	*Arytaina*	
minuta	*Euglyptoneura*	(Crawford)	1914	*Arytaina*	
robusta	*Euglyptoneura*	(Crawford)	1914	*Arytaina*	
cercocarpi	*Euphalerus*	Jensen	1957		
jugonervosus	*Euphalerus*	Tuthill	1937		
nepos	*Euphalerus*	Bliven	1955		
rugipennis	*Euphalerus*	Crawford	1914		
vermiculosus	*Euphalerus*	Crawford	1914		
cubana	*Heteropsyila*	Crawford	1914		Introduced, 1986 , one collection ORA Co. only
texana	*Heteropsylla*	Crawford	1914		
ficus	*Homotoma*	(Linnaeus)	1758		Introduced f/Europe, 1969
medicaginus	*Kuwayama*	(Crawford)	1910		
caricis	*Livia*	Crawford	1914		
arbuti	*Neophyllura*	(Schwarz)	1904	*Euphyllura*	
arctostaphyli	*Neophyllura*	(Schwarz)	1904	*Euphyllura*	
bicolor	*Neophyllura*	(Martin)	1931	*Euphyllura*	
niveipennis	*Neophyllura*	(Schwarz)	1904	*Euphyllura*	
pruinosa	*Neophyllura*	(Martin)	1931	*Euphyllura*	
sculptoconus	*Neotriozella*	Crawford	1914		
lynceus	*Nyctiphalerus*	Bliven	1955		Generic status doubtful (*Euphalerus*)
celtidisvesiculum	*Pachypsylla*	Riley	1884		Introduced f/E. US, 1960
fremontiae	*Paraphalaroida*	(Klyver)	1930	*Paurocephala*	
cockerelli	*Paratrioza*	(Sulc)	1909		
dubia	*Paratrioza*	Tuthill	1943		
lavaterae	*Paratrioza*	(Van Duzee)	1924	*Kuwayama*	
maculipennis	*Paratrioza*	(Crawford)	1910		
cercocarpi	*Pexopsylla*	Jensen	1957		
alni	*Psylla*	(Linnaeus)	1785		
floccosa	*Psylla*	Patch	1909		
trimaculata	*Psylla*	Crawford	1911		
fraxinicola	*Psyllopsis*	(Förster)	1848		Introduced f/E. US, 1920; native to Europe
pubescens	*Purshivora*	(Crawford)	1914	*Arytaina*	
alacris	*Trioza*	Flor	1861	*Lauritrioza*	Introduced f/ Europe, 1933
albifrons	*Trioza*	Crawford	1910		
astraea	*Trioza*	Bliven	1960		
bakeri	*Trioza*	Crawford	1910		
beameri	*Trioza*	Tuthill	1939		
breviantennata	*Trioza*	Crawford	1914		

Species	Genus	Author	Year	Previous Genus	Comments
californica	*Trioza*	Crawford	1910		
collaris	*Trioza*	Crawford	1910		
eugeniae	*Trioza*	Froggatt	1901		
frontalis	*Trioza*	Crawford	1910		
incerta	*Trioza*	Tuthill	1943		
lobata	*Trioza*	Crawford	1914		
loletae	*Trioza*	Bliven	1958		
longicornis	*Trioza*	Crawford	1910		
minuta	*Trioza*	Crawford	1910		
mira	*Trioza*	Tuthill	1943		
occidentalis	*Trioza*	Tuthill	1943		
phoradendri	*Trioza*	Tuthill	1939		
quadripunctata	*Trioza*	Crawford	1910		
salicivora	*Trioza*	Reuter	1876		
stygma	*Trioza*	Tuthill	1939		
sulcata	*Trioza*	Crawford	1910		
varians	*Trioza*	Crawford	1910		
viridis	*Trioza*	Crawford	1910		
eos	*Vailakiella*	Bliven	1955		Generic status doubtful (*Livia*)

BOTANY HIGHLIGHTS

NEW COUNTY RECORDS

SKELETON WEED, *Chondrilla juncea,L.* -(A)- Has been found for the first time in Butte County, along the roadside on Highway 149. Don Joley, CDFA Pest Management Specialist, with Environmental Monitoring/Biological Control, found the small clump while conducting an informal survey on Sunday, May 14, 1989, (see map, page 31.)

The nearest previously known skeletonweed locations are in Sierra and Yuba Counties, with the heaviest infestations in western El Dorado and Placer Counties.

OTHER FINDS OF SIGNIFICANCE

MAYWEED, *Anthemis cotula L..*, -(C)- In Glenn County several farm workers, who had been clearing out mayweed for three days, developed severe rashes with painful blisters and second-degree burns, although not all the workers were affected. Dr. Michael O'Malley, a physician with the Worker Health and Safety division of the CDFA, says that pending the outcome of an investigation underway, California farmers will be cautioned to beware of the weed.

Mayweed, or dog fennel, is an herb that stands one to two feet high with flowering heads resembling daisies. Mayweed is known to produce a strong irritant, which is considered allergenic. It has been suggested by Dr. William Epstein, dermatology professor at University of California, San Francisco, that the recent California storms may be causing the plant to produce a "higher-than-usual" amount of toxins.

Over fifty years ago, there were cases reported of farm workers developing bullous dermatitis on their feet after working barefooted in mayweed. Again, only some of the workers exhibited a reaction to the weed.

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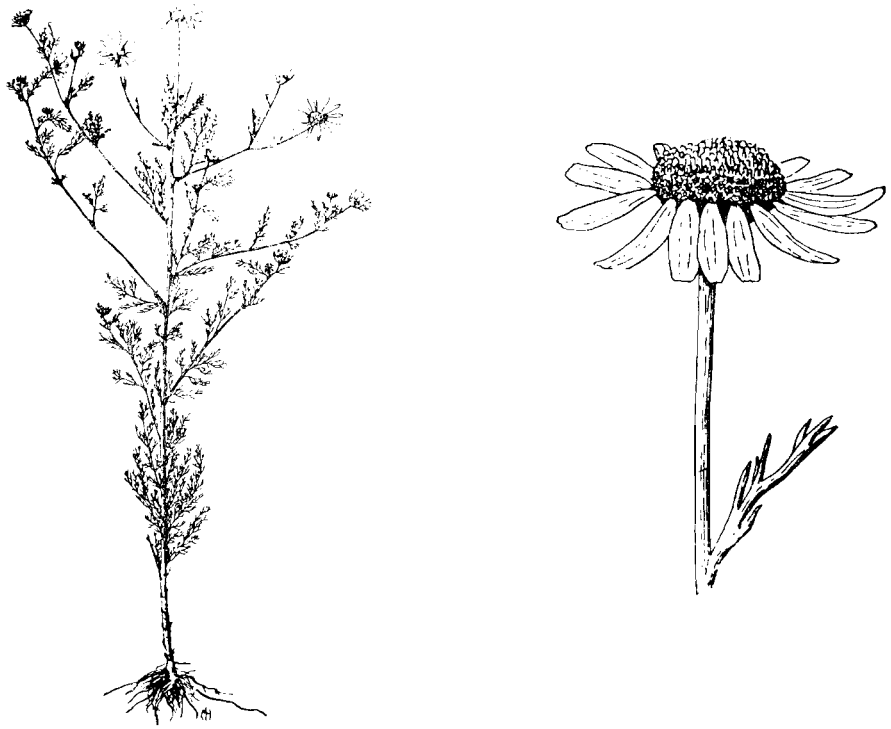

Fig. 4 Mayweed, *Anthemis cotula*. (Adapted from **Weeds of California**, compiled by Robbins, Bellue and Ball).

STATE OF CALIFORNIA • DEPARTMENT OF FOOD AND AGRICULTURE

DIVISION OF PLANT INDUSTRY - ANALYSIS & IDENTIFICATION/BOTANY

DETECTION MANUAL
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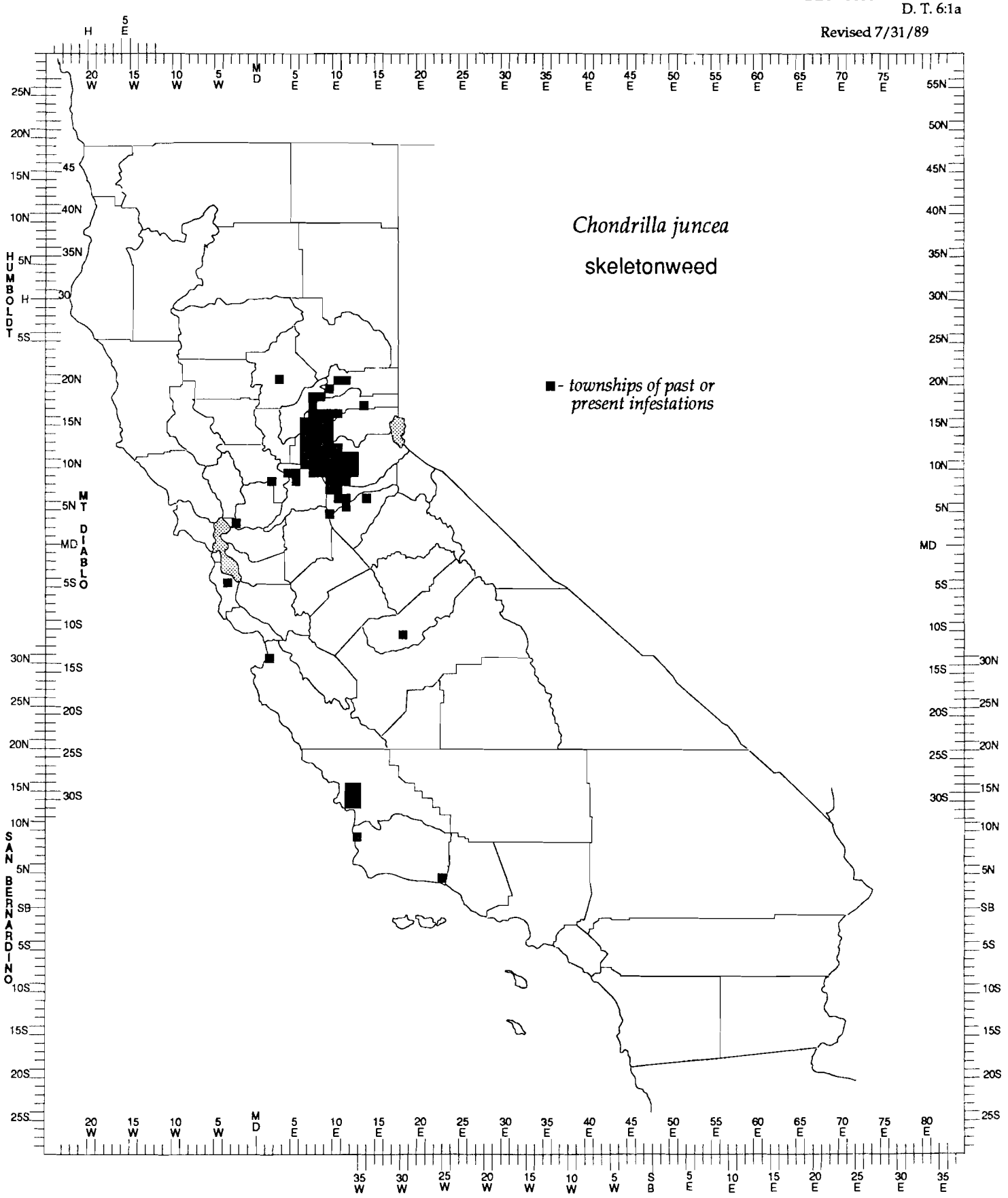

PLANT PATHOLOGY HIGHLIGHTS

ACACIA SCORCH

A new disease was observed affecting black acacia, *Acacia melanoxylon*, trees in the Vallejo and Benicia areas of Solano County. It was reported in 1984 by John DeHoop of the Solano County Agricultural Commissioner's Office. William O. McCartney and Tim Tidwell conducted further investigations in 1987 and 1988.

Description of the Disease: Large masses of foliage* have a "scorched" appearance. Symptoms are more noticeable in the summer months. The scorched leaves are preceded by leaf mottling, leaf spots, and yellowing from the leaf edge, proceeding to a marginal leaf burn. There is a loss of affected foliage, as well as a slow decline and die-back of terminal branches.

Nature and Degree of Infestation: Symptomatic trees are limited to three sites consisting of 10 to 40 black acacia trees in Vallejo and Benicia. Soil type and cultural practices are not uniform for the three sites, except that all three sites are naturalized grassland. The cause of this scorch of black acacia is unknown. A Xylem-inhabiting fastidious bacterium has been speculated as a possible causal agent, although ELISA tests have failed to confirm this. Similar foliage symptoms of marginal burn scorch disease have been observed on black acacia trees affected with oak root fungus in Rancho Cordova, Sacramento County. This suggests the possibility of root problems being directly or indirectly responsible for the disease. Oak root fungus has not been observed on the three Solano County sites.

*The foliage or "leaves" most frequently encountered are actually phyllodes. Phyllodes are petioles to the true leaves. In this species, the true leaves are rarely seen.

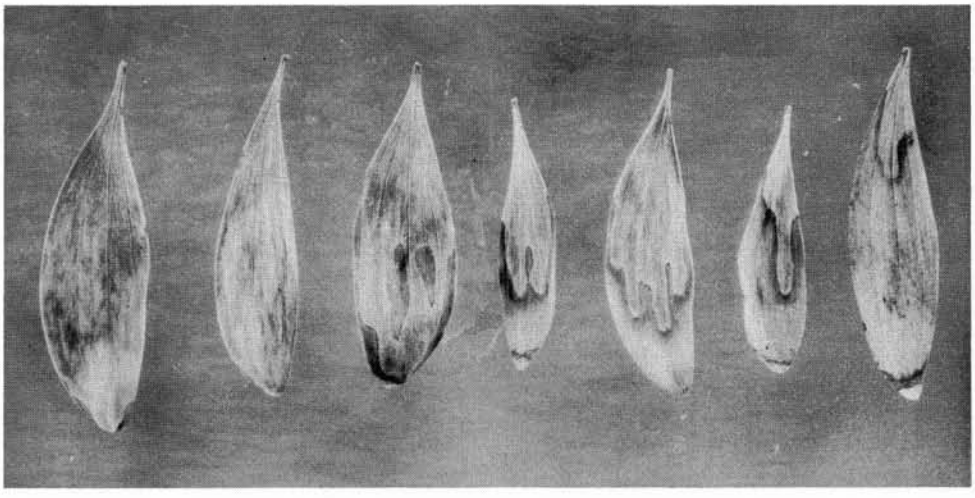

Fig. 4, Acacia scorch symptoms

OEDEMA

by

T.E. Tidwell

Oedema is a physiological disease affecting many genera of plants, in which small blister-like swellings develop on the foliage. The disorder is not known to be fatal, nor particularly detrimental to the health or vigor of the affected plant, but it can make the plant's foliage unsightly. Although new foliage may grow out free of oedema, once a leaf has developed oedema it never "recovers," i.e. the blemishes are permanent. Consequently it is considered a significant problem to the nursery industry, and particularly to the foliage plant industry.

The word "oedema" (also "edema") comes from the Greek "oidema" which means "swelling," a very descriptive term for the disease. Early symptoms appear as tiny, water-soaked swellings on the undersides of leaves. Occasionally the swellings occur on petioles and succulent stems as well. In later stages, the watery blisters may turn rusty brown in color, giving them a "corky" appearance (Fig. 3). These corky blisters are sometimes mistaken for pustules of rust fungi.

Ideal conditions for oedema occur when soil is moist and warm, but air is moist and cool. Plants are especially vulnerable when leaves are cooled rapidly, e.g. during periods of extreme temperature fluctuations. Water absorption from the soil (via roots) is rapid but water loss (via leaves) is slow. This results in an "overturgid" condition. Cells and small masses of tissue swell, causing the characteristic watery blisters. Cells may become so swollen that they burst. The problem is especially severe in poorly ventilated greenhouses where moist, warm soil is commonly coupled with cool, humid air. However, the problem occurs outdoors as well, particularly during cool, cloudy weather. Oedema tends to be most severe in late winter and early spring when soil begins to warm, plant sap begins to flow, and air temperatures fluctuate.

When environmental conditions are favorable for oedema, several horticultural precautions can be taken to reduce the amount of damage from this disease. Where it is practical, (1) avoid over-watering which leads to water-saturated root zones; (2) maintain humidity at a low level by providing adequate ventilation and air circulation, keeping plants well-spaced and foliage dry; (3) where environmental conditions can be controlled, i.e., in a greenhouse, prevent rapid drops in air temperatures; and (4) it has also been suggested that greenhouse ventilators should be kept open during the day, but closed during cold nights so that air surrounding the plant foliage does not get any colder than the soil.

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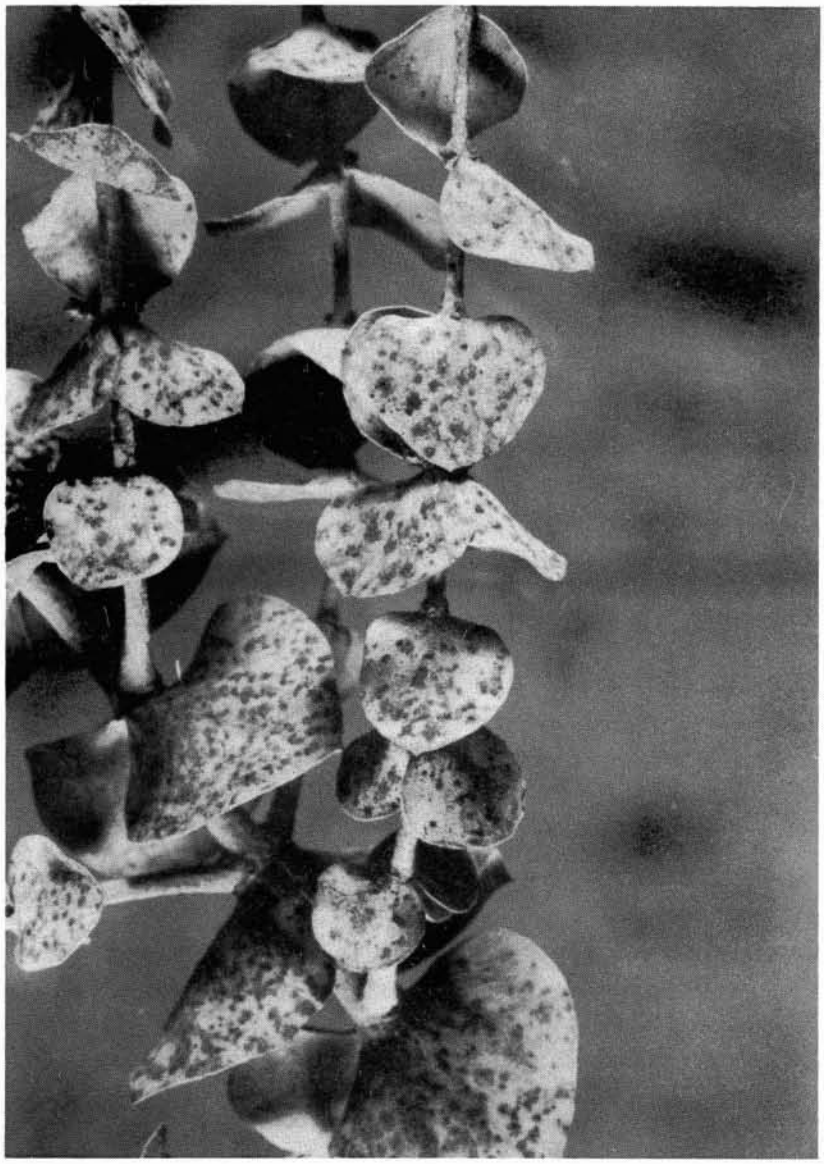

Fig. 5 Injury to Eucalyptus foliage caused by oedema, a physiological disease associated with excessive soil moisture and warm soil temperatures, coupled with retarded transpiration due to cool, moist air.

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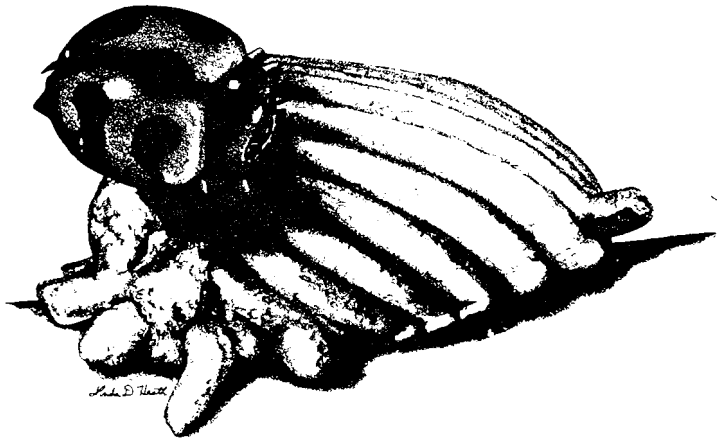

SUPPLIERS OF BENEFICIAL ORGANISMS IN NORTH AMERICA
A brochure list prepared by Larry G. Bezark

The 1989 issue of the Suppliers' List commemorates the 100th anniversary of the importation and release of the Vedalia beetle, *Rodolia cardinalis* (Mulsant). In 1988-89, Albert Koebele was sent to Australia by the USDA to find biological agents to control the Cottony Cushion Scale which was ravaging the California citrus industry. The Vedalia was released in California and quickly reduced populations of scale to non-economic levels. Today, low numbers of both the scale and the Vedalia co-exist, and the scale is no longer a threat.

In 1985, the Suppliers' List recorded 53 companies with biological controls available for sale. The current edition lists 60 companies. In addition, the list of organisms has also increased with each edition, expanding from 45 in 1985, to 60 in 1989. Certain species, such as the mealybug destroyer and parasites of the black scale and citrus mealybug, have limited or intermittent availability.

As more scientific work establishes the efficacy of certain groups of organisms, the emphasis of the current list has shifted from highlighting ladybugs and praying mantids. These latter organisms can be helpful in certain situations, but it must be remembered that they are general predators and may not remain in areas where they are initially released. The majority of the organisms listed here are specific control agents, which are useful in orchard, field, ranch greenhouse or home and garden situations. The categories of organisms in the list now reflect this shift towards more scientific use of biological controls, by emphasizing predatory mites, parasitoids of filth flies and beneficial, parasitic nematodes.

Several of the companies listed here provide consultation services in addition to offering biological controls. These services can be extremely valuable in setting up integrated pest management (IPM) programs of which biological controls are a part. Many of the suppliers also have literature available.

This useful publication is now available from:

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